

CLAIMS

We claim:

1. A method of distributing software upgrades having a software version upgrade
5 wherein the method comprises:
 - a. providing database schema synchronization, and
 - b. providing support for installations and terminals in an enterprise.
2. The method of claim 1 wherein the method further comprises:
 - a. tracking the progress of upgrades, and
 - 10 b. automatically rolling back changes when an error occurs.
3. The method of distributing software version upgrades of claim 2, wherein the upgrade software can restart an upgrade from a last save point.
4. The method of distributing software version upgrades of claim 1 wherein:
 - a. a database administrator defines and distributes software and schema
15 upgrades from a central location, and
 - b. the database administrator monitors progress of the upgrades across all installations.
5. The method of distributing software version upgrades of claim 1 wherein the upgrade runs by itself and does not depend on other programs or data.
- 20 6. A method of providing software version upgrades and database schema synchronization comprising:
 - a. applying and distributing database schema changes to remote databases, and
 - b. applying schema changes and patches.

7. The method of providing software version upgrades and database schema synchronization of claim 6 wherein the software provider upgrades one or more of an installation and a terminal.

5 8. The method of providing software version upgrades and database schema synchronization of claim 7, wherein the installations and terminals comprise one or more of the group consisting of a connected client, a remote client, a regional server, and an application server.

9. A method of distributing and instantiating software version upgrades in a distributed computing environment comprising:

10 a. setting minimum and maximum levels of the version for installed software, and

b. using those levels to define contents of software version upgrade kits.

10. The method of claim 9 further comprising writing the contents of the software version upgrade kits to a database and generating software version upgrade kit tables.

15 11. The method of claim 10 wherein the method comprises:

a. building software version upgrade kits from the software version upgrade kit tables,

20 b. downloading copies of the upgrade kits to clients to be upgraded, and

c. upgrading software on a client.

25 12. The method of claim 10 further comprising:

a. comparing the software version upgrade kit tables to locally installed software on a client, and

b. downloading to the client the software needing to be installed on the client.

13. The method of claim 12 further comprising comparing the upgrade kit tables with the locally installed software on a client at the startup of the client.
14. The method of claim 12 further comprising comparing the upgrade kit tables with the locally installed software on a client at the startup of a server.
- 5 15. The method of claim 12 further comprising comparing the upgrade kit tables with the locally installed software on a client at the startup of a software component.
16. A method of distributing a software version upgrade from a server to a client comprising
- 10 a. comparing software on the server to locally installed software on the client at a docking session,
- b. downloading to the client software needing to be installed on the client, and
- c. instantiating the upgrade during a current docking session.
- 15 17. The method of claim 16 comprising instantiating the upgrade during the current docking session or a subsequent docking session.
18. A method of distributing a software version upgrade in a distributed computing environment having a server, a client, and at least one of the group consisting of a replicated database and a partially replicated database, comprising:
- 20 a. comparing a database schema version on the client to a database schema version on the server,
- b. reinitializing the database schema version on the client if the database schema version on the client and the database schema version on the server do not match, and
- 25 c. synchronizing the database schema version on the client with the database schema version on the server if the database schema versions on the client and server do match.

19. The method of claim 18 wherein the upgrade is a partial upgrade.
20. The method of claim 19 wherein comprising performing the upgrade, and distributing a new installation and a patches for an existing installations.
- 5 21. The method of claim 20 wherein the patch is at least one of the group consisting of a CDF file, an executable, a DLL, and a report.
22. A method of distributing software upgrades having a software version upgrade comprising:
- a. providing database schema synchronization,
 - 10 b. providing support for installations and terminals in an enterprise, and
 - c. automatically performing at least one of the functions in the group consisting of detecting existing programs and invoking upgrade programs.
23. The method of claim 22 wherein the upgrade programs further comprise at least one of the group consisting of clients and replication agents.
- 15 24. The method of claim 22 further comprising installation software that automatically detects when an upgrade is available and can be applied to a local installation.
25. The method of claim 22 wherein at least one of the software version upgrade programs allows a user to perform at least one of the functions in the group consisting
- 20 of cancelling an upgrade and deferring an upgrade.
26. The method of claim 22 wherein the software version upgrade performs at least one of the functions in the group consisting of keeping a user informed on the status of an upgrade, informing the user of a pending upgrade, informing the user of steps to be performed in an upgrade, providing time estimates for an upgrade, and
- 25 providing progress indicators during an upgrade.
27. The method of claim 22 wherein a database administrator distributes the software version upgrades.

28. The method of claim 22 further comprising allowing a user to use any method to install or update a software component.

29. The method of claim 22 further comprising allowing a software version
upgrade to use a current state of software components to identify whether an upgrade
5 is needed.

30. The method of claim 1 wherein the software version upgrade allows a mobile user to download one or more upgrade kits to the user's local machine before the user requires the upgrade.

31. A program storage device readable by a machine, tangibly embodying a
10 program of instructions executable by a machine to perform method steps distributing
software upgrades having a software version upgrade, said method steps comprising:

- a. providing database schema synchronization; and
- b. providing support for installations and terminals in an enterprise.

32. An article of manufacture comprising a computer usable medium having
15 computer readable program code means embodied therein for causing distributing
software upgrades having a software version upgrade, the computer readable program
means in said article of manufacture comprising:

- a. computer readable program code means for causing a computer to effect providing database schema synchronization; and
- 20 b. computer readable program code means for causing a computer to effect providing support for installations and terminals in an enterprise.

33. A program storage device readable by a machine, tangibly embodying a program of instructions executable by a machine to perform method steps distributing software upgrades having a software version upgrade, said method steps comprising:

- 25 a. providing database schema synchronization; and
- b. providing support for installations and terminals in an enterprise; and
- c. tracking the progress of upgrades; and

40.

- d. automatically rolling back changes when an error occurs.

34. An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for causing distributing software upgrades having a software version upgrade, the computer readable program means in said article of manufacture comprising:

- a. computer readable program code means for causing a computer to effect providing database schema synchronization; and
- b. computer readable program code means for causing a computer to effect providing support for installations and terminals in an enterprise; and
- 10 c. computer readable program code means for causing a computer to effect tracking the progress of upgrades; and
- d. computer readable program code means for causing a computer to effect automatically rolling back changes when an error occurs.

35. A program storage device readable by a machine, tangibly embodying a program of instructions executable by a machine to perform method steps distributing software upgrades having a software version upgrade, said method steps comprising:

- a. providing database schema synchronization; and
- b. providing support for installations and terminals in an enterprise; and
- c. tracking the progress of upgrades; and
- 20 d. automatically rolling back changes when an error occurs; and
- e. restarting an upgrade from a last save point.

36. An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for causing distributing software upgrades having a software version upgrade, the computer readable program means in said article of manufacture comprising:

- 001060" 090100 09653706
- a. computer readable program code means for causing a computer to effect providing database schema synchronization; and
 - b. computer readable program code means for causing a computer to effect providing support for installations and terminals in an enterprise; and
 - 5 c. computer readable program code means for causing a computer to effect tracking the progress of upgrades; and
 - d. computer readable program code means for causing a computer to effect automatically rolling back changes when an error occurs; and
 - 10 e. computer readable program code means for causing a computer to effect restarting an upgrade from a last save point.

37. A program storage device readable by a machine, tangibly embodying a program of instructions executable by a machine to perform method steps providing software version upgrades and database schema synchronization having a software provider, said method steps comprising:

- 15 a. applying and distributing database schema changes to remote databases; and
- b. applying schema changes and patches.

38. An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for causing providing
20 software version upgrades and database schema synchronization having a software provider, the computer readable program means in said article of manufacture comprising:

- 25 a. computer readable program code means for causing a computer to effect applying and distributing database schema changes to remote databases; and
- b. computer readable program code means for causing a computer to effect applying schema changes and patches.

39. A program storage device readable by a machine, tangibly embodying a program of instructions executable by a machine to perform method steps distributing and instantiating software version upgrades in a distributed computing environment, said method steps comprising:

- 5 a. setting minimum and maximum levels of the version for installed software; and
- b. using those levels to define contents of software version upgrade kits.

40. An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for causing distributing and
10 instantiating software version upgrades in a distributed computing environment, the computer readable program means in said article of manufacture comprising:

- a. computer readable program code means for causing a computer to effect setting minimum and maximum levels of the version for installed software; and
- 15 b. computer readable program code means for causing a computer to effect using those levels to define contents of software version upgrade kits.

41. A program storage device readable by a machine, tangibly embodying a program of instructions executable by a machine to perform method steps distributing a software version upgrade from a server to a client, said method steps comprising:

- 20 a. comparing software on the server to locally installed software on the client; and
- b. downloading to the client software needing to be installed on the client; and
- c. carrying out the comparison and download at a docking session; and
- 25 d. instantiating the upgrade during a current docking session.

42. An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for causing distributing a

Software version upgrade from a server to a client, the computer readable program means in said article of manufacture comprising:

a. computer readable program code means for causing a computer to effect comparing software on the server to locally installed software on the client; and

a. computer readable program code means for causing a computer to effect downloading to the client software needing to be installed on the client; and

a. computer readable program code means for causing a computer to effect carrying out the comparison and download at a docking session; and

a. computer readable program code means for causing a computer to effect instantiating the upgrade during a current docking session.

43. A program storage device readable by a machine, tangibly embodying a program of instructions executable by a machine to perform method steps distributing a software version upgrade in a distributed computing environment having a server, a client, and at least one of the group consisting of a replicated database and a partially replicated database, said method steps comprising:

a. comparing a database schema version on the client to a database schema version on the server; and

b. reinitializing the database schema version on the client if the database schema version on the client and the database schema version on the server do not match; and

c. synchronizing the database schema version on the client with the database schema version on the server if the database schema versions on the client and server do match.

44. An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for causing distributing a software version upgrade in a distributed computing environment having a server, a

client, and at least one of the group consisting of a replicated database and a partially replicated database, the computer readable program means in said article of manufacture comprising:

5 a. computer readable program code means for causing a computer to effect comparing a database schema version on the client to a database schema version on the server; and

10 a. computer readable program code means for causing a computer to effect reinitializing the database schema version on the client if the database schema version on the client and the database schema version on the server do not match; and

a. computer readable program code means for causing a computer to effect synchronizing the database schema version on the client with the database schema version on the server if the database schema versions on the client and server do match.

15 45. A program storage device readable by a machine, tangibly embodying a program of instructions executable by a machine to perform method steps distributing software upgrades having a software version upgrade, said method steps comprising:

a. providing database schema synchronization; and

b. providing support for installations and terminals in an enterprise; and

20 c. automatically performing at least one of the functions in the group consisting of detecting existing programs and invoking upgrade programs.

46. An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for causing distributing software upgrades having a software version upgrade, the computer readable program
25 means in said article of manufacture comprising:

a. computer readable program code means for causing a computer to effect providing database schema synchronization; and

- b. computer readable program code means for causing a computer to effect providing support for installations and terminals in an enterprise; and
- c. computer readable program code means for causing a computer to effect automatically performing at least one of the functions in the group consisting of detecting existing programs and invoking upgrade programs.

47. A program storage device readable by a machine, tangibly embodying a program of instructions executable by a machine to perform method steps distributing software upgrades having a software version upgrade, said method steps comprising:

- a. providing database schema synchronization; and
- b. providing support for installations and terminals in an enterprise; and
- c. allowing a mobile user to download one or more upgrade kits to the user's local machine before the user requires the upgrade.

48. An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for causing distributing software upgrades having a software version upgrade, the computer readable program means in said article of manufacture comprising:

- a. computer readable program code means for causing a computer to effect providing database schema synchronization; and
- b. computer readable program code means for causing a computer to effect providing support for installations and terminals in an enterprise; and
- c. computer readable program code means for causing a computer to effect allowing a mobile user to download one or more upgrade kits to the user's local machine before the user requires the upgrade.

49. The method of claim 1 wherein the software version upgrade upgrades both database schemas and software.

50. The method of claim 1 wherein the software version upgrade is database independent.

51. The method of claim 1 further comprising checking for versions at one or more of the group consisting of startup and docking initiation.

52. The method of claim 1 further comprising upgrading a file attachment and an associated database file in a same transaction.

add
D-1

001060" 902E5960